

Remarks

Applicant respectfully requests reconsideration of this application as amended. Claims 1-32 remain in this application. No claims have been amended, added, or canceled.

Rejections under 35 U.S.C. § 103(a)

Claims 1-8, 10-18, 20-21, 23-24, and 26-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Walters et al., U.S. Patent Publication No. 2002/0176131, and Shiragaki, et al., U.S. Patent No. 6,657,952. Applicant respectfully submits that the combination does not disclose each and every element of the invention as claimed in claims 1-8, 10-18, 20-21, 23-24 and 26-32.

Walters discloses an optical communications network comprising multiple optical switches (Walters, Abstract). In this network, optical paths are setup to transport traffic across the optical network (Walters, paragraph 4). Each of the optical paths can be protected using different protection schemes, such as 1+1, 1:1, or 1:N protection (Walters, paragraphs 5-6). Furthermore, each of these protection schemes has a working path and a protection path, with the protection path being disjoint to some degree from the working path (Walters, paragraphs 5-6). A protected path can be link disjoint or node and link disjoint (Walters, paragraph 407).

On one hand, using 1+1 protection, traffic is transported concurrently on a working path and a protection path (Walters, paragraph 5, 289, 486). Upon failure of the working path, the traffic transported over the protection path is delivered to the user (Walters, paragraphs 6 and 502). On the other hand, Walters discloses that for a 1:1 protection scheme, the working path carries high priority traffic and the protection path carries low priority traffic (Walters, Fig. 53, paragraphs 6, 289, 487). Upon failure of the working path, the high priority traffic is switched to the protection path and pre-empts the low priority traffic (Walters, paragraph 5). However, Walters does not disclose that the low priority traffic has a protection path or that the low priority traffic is switched to another path when the low priority traffic is pre-empted by the high priority traffic. Furthermore, Walters does not disclose searching for a protection path with disjoint constraints different from the disjoint constraints requested by a customer.

Shiragaki discloses a network that includes working paths and protection paths (Shiragaki, Abstract). The protection paths are used to carry the high priority traffic on the working paths in the event one of the working paths fails (Shiragaki, Col. 2, lines 20-24). In addition, the protection paths carry low priority traffic which is cleared out in case of a working paths failure (Shiragaki, Col. 12, lines 6-8). If one of the protection paths cannot be established for the working path, then another protection path is used for the failed working path (Shiragaki, Col. 2, line 66 – Col. 3, line 2). Thus, Shiragaki discloses that one working path can have multiple protection paths. In addition, Shiragaki discloses that each protection path carries low priority traffic that is pre-empted by the high priority traffic. However, Shiragaki does not disclose that the low priority traffic has a protection path or that the low priority traffic is switched to another path when the low priority traffic is pre-empted by the high priority traffic. Furthermore, Walters does not disclose searching for a protection path with disjoint constraints different from the disjoint constraints requested by a customer.

Applicant respectfully submits that Walters and/or Shiragaki do not teach or suggest Applicant's claims. The Examiner admits that Walters does not teach or suggest "assigning or preempting the second protection path as a protection path to the first working path if the first priority of the first protection scheme is higher than the second priority of the second protection scheme" and relies on Shiragaki to disclose this missing limitation. Shiragaki discloses one working path having multiple protection paths and that each protection path can carry low priority traffic. However, Shiragaki does not disclose that this low priority traffic having its own protection path. Thus, Shiragaki's low priority traffic is being transported across an unprotected path. As such, the protected path of the high priority traffic is the working path for the low priority traffic. Therefore, Shiragaki discloses assigning a second working path as a protection path of a first working path. Accordingly, Shiragaki does not teach or suggest assigning or preempting the second protection path as a protection path to the first working path if the first priority of the first protection scheme is higher than the second priority of the second protection scheme.

For example, claim 1 requires "receiving a demand for allocating a first protection path that meets a first set of disjointness constraints with respect to a first working path according to a first protection scheme having a first priority; in response to the demand, locating a second protection path that meets a second set of disjointness constraints with

respect to a second working path according to a second protection scheme having a second priority; and assigning the second protection path as a protection path to the first working path if the first priority of the first protection scheme is higher than the second priority of the second protection scheme.”

Furthermore, claim 10 requires, “a routing module to receive a demand for a first protection path that meets a set of disjointness constraints with respect to a first working path according to a first protection scheme having a first priority, in response to the demand, locate from the database a second protection path that meets a second set of disjointness constraints with respect to a second working path according to a second protection scheme having a second priority, and assign the second protection path as a protection path to the first working path if the first priority of the first protection scheme is higher than the second priority of the second protection scheme.”

Claim 27 requires “receiving a demand for a first protection path associated with a first working path according to a first protection scheme having a first priority, and preempting a second protection path associated with a second working path according to a second protection scheme having a second priority, if the first priority is higher than a second priority according to a protection scheme priority order specified by an owner of the network.”

Claim 30 requires “a routing module to receive a demand for a first protection path associated with a first working path according to a first protection scheme having a first priority, and preempt a second protection path associated with a second working path according to a second protection scheme having a second priority, if the first priority is higher than a second priority according to a protection scheme priority order specified by an owner of the network.”

Furthermore, Applicant respectfully submits that neither Walters nor Shiragaki teach or suggest that if a first protection path cannot be located, searching for a second protection path that meets a second set of disjointness constraints, where the second set of disjointness constraints being determined according to a disjointness preference order specified by an owner of the network as claimed in claim 21. The Examiner admits that Walters does not teach or suggest this limitation and relies on Shiragaki as disclosing it. The section of Shiragaki cited by the Examiner in support of the rejection of claim 21

merely discloses that a working path can have multiple protection paths and that the protection paths can carry low priority traffic. However, these sections of Shiragaki do not teach or suggest disjointness constraints. Furthermore, there is no other section in Shiragaki that teaches or suggests that “if a first protection path cannot be located, searching for a second protection path that meets a second set of disjointness constraints, the second set of disjointness constraints being determined according to a disjointness preference order specified by an owner of the network.”

For example, claim 21 requires “searching, in response to a demand for a protection path that meets a first set of disjointness constraints with respect to a working path, in a database for a first protection path that meets the first set of disjointness constraints; and if the first protection path cannot be located, searching for a second protection path that meets a second set of disjointness constraints, the second set of disjointness constraints being determined according to a disjointness preference order specified by an owner of the network.”

Furthermore, claim 24 requires “a routing module to search, in response to a demand for a protection path that meets a first set of disjointness constraints with respect to a working path, in a database for a first protection path that meets the first set of disjointness constraints, and if the first protection path cannot be located, search for a second protection path that meets a second set of disjointness constraints, the second set of disjointness constraints being determined according to a disjointness preference order specified by an owner of the network.”

As stated above, both Shiragaki and Walters disclose low priority traffic is transported across an unprotected working path. Because this is an unprotected working path, there is no protection path for the low priority traffic. As above, Applicant assumes that the Examiner equates Applicant’s second working path to either of Walters’ or Shiragaki’s low priority traffic path. Therefore, neither Walters nor Shiragaki can teach or suggest “allocating another path as a protection path for the second working path if the second protection path is assigned to the first working path.” For example, claim 2 requires “allocating another path as a protection path for the second working path if the second protection path is assigned to the first working path.” Furthermore, claim 12

requires “the routing module allocates another path as a protection path for the second working path if the second protection path is assigned to the first working path.”

The above quoted limitations are not described or suggested by Walters and/or Shiragaki. While there are various uses for the invention as claimed, several such uses are discussed in Figures 11 and 18 and paragraphs 125-135 and 171-174. Thus, while the invention is not limited to the uses discussed on these pages, it should be understood that Walters does not enable these uses and the above quoted limitations do.

Claims 9, 19, 22 and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Walters, Shiragaki, and Wong, et al., U.S. Patent Publication No. 2003/0193898. Applicant respectfully submits that the combination does not teach each and every element of the invention as claimed in claim 9, 19, 22, and 25.

All of the above claims depend from one of the above identified independent claims. It is respectfully submitted that the above identified cited references, individually or in combination, fail to disclose or suggest the limitations set forth the above independent claims.

SUMMARY

Applicant respectfully submits that the rejections have been overcome by the amendments and remarks, and that the Claims as amended are now in condition for allowance. Accordingly, Applicant respectfully requests the rejections be withdrawn and the Claims as amended be allowed.

Invitation for a telephone interview

The Examiner is invited to call the undersigned at 408-720-8300 if there remains any issue with allowance of this case.

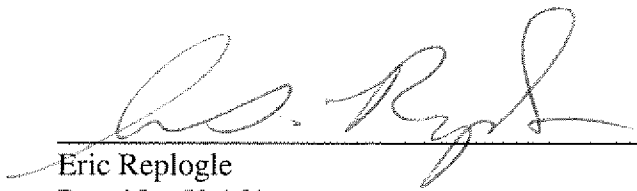
Charge our Deposit Account

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

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